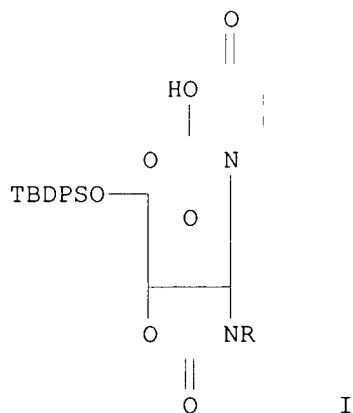


L10 1 L9

=> d tot all

L10 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:182527 HCAPLUS
DN 125:87092
TI Novel nucleosides via intramolecular functionalization of
2,2'-anhydrouridine derivatives
AU McGee, Danny P. C.; Sebesta, David P.; O'Rourke, Sarah S.; Martinez,
Rogelio L.; Jung, Michael E.; Pieken, Wolfgang A.
CS NeXstar Pharmaceuticals Inc., Boulder, CO, 80301, USA
SO Tetrahedron Lett. (1996), 37(12), 1995-8
CODEN: TELEAY; ISSN: 0040-4039
DT Journal
LA English
CC 33-9 (Carbohydrates)
OS CASREACT 125:87092
GI



AB The generation of novel ribonucleoside analogs, e.g. I (R = OMe, OBn, Bz), derived from 2,2'-anhydrouridines by a 3'-hydroxyl directed intramol. nucleophilic substitution of the 2'-position is described. The methodol. allows for the efficient, regio- and stereoselective elaboration of the 2'-position, often under exceptionally mild reaction conditions.
ST regioselective stereoselective nucleophilic substitution anhydrouridine; intramol nucleophilic substitution nucleoside; nucleoside analog prepn
IT Substitution reaction, nucleophilic
(intramol., regio- and stereoselective; prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
IT Regiochemistry
Stereochemistry
(prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
IT Nucleosides, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of nucleoside analogs via intramol. nucleophilic substitution

of anhydrouridines)
IT 67-62-9 622-33-3, Benzyloxyamine 957-75-5 4461-33-0, Benzoyl
isocyanate 41879-39-4 173170-12-2 175013-46-4
RL: RCT (Reactant)
(prepn. of nucleoside analogs via intramol. nucleophilic substitution
of anhydrouridines)
IT 26889-39-4P 35837-20-8P 174221-82-0P 174221-86-4P 175013-47-5P
175013-51-1P 175013-53-3P 175013-57-7P 175013-60-2P 175013-62-4P
176685-69-1P 176685-71-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of nucleoside analogs via intramol. nucleophilic substitution
of anhydrouridines)
IT 174221-85-3P 175013-48-6P 175013-58-8P 175013-61-3P 176685-68-0P
176685-70-4P 176685-72-6P 176685-73-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of nucleoside analogs via intramol. nucleophilic substitution
of anhydrouridines)

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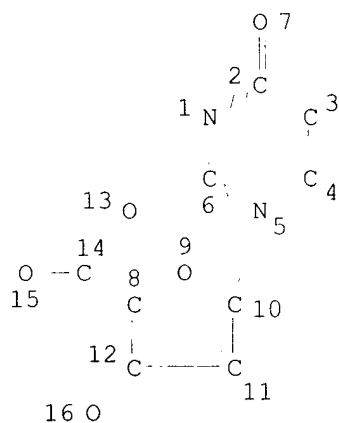
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L13 435 S L11 FUL
L14 STR L1
L15 5 S L14
L16 157 S L14 FUL
L17 STR L1
L18 0 S L17
L19 12 S L17 FUL

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medl,haplus,biosis,embase;s l13 and l16 and l19

L11 STR



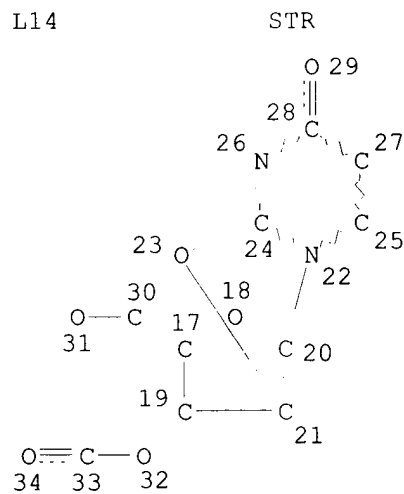
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
 L13 435 SEA FILE=REGISTRY SSS FUL L11

100.0% PROCESSED 1072 ITERATIONS
 SEARCH TIME: 00.00.01

435 ANSWERS



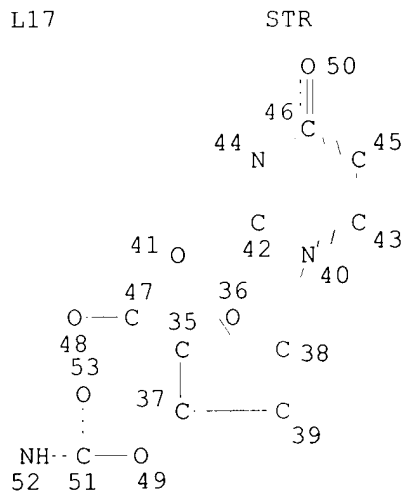
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 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE
L16 157 SEA FILE=REGISTRY SSS FUL L14

100.0% PROCESSED 443 ITERATIONS
SEARCH TIME: 00.00.01

157 ANSWERS



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE
L19 12 SEA FILE=REGISTRY SSS FUL L17

100.0% PROCESSED 14 ITERATIONS
SEARCH TIME: 00.00.01

12 ANSWERS

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L20 0 FILE MEDLINE
L21 7 FILE HCAPLUS
L22 0 FILE BIOSIS
L23 0 FILE EMBASE

TOTAL FOR ALL FILES
L24 7 L13 AND L16 AND L19

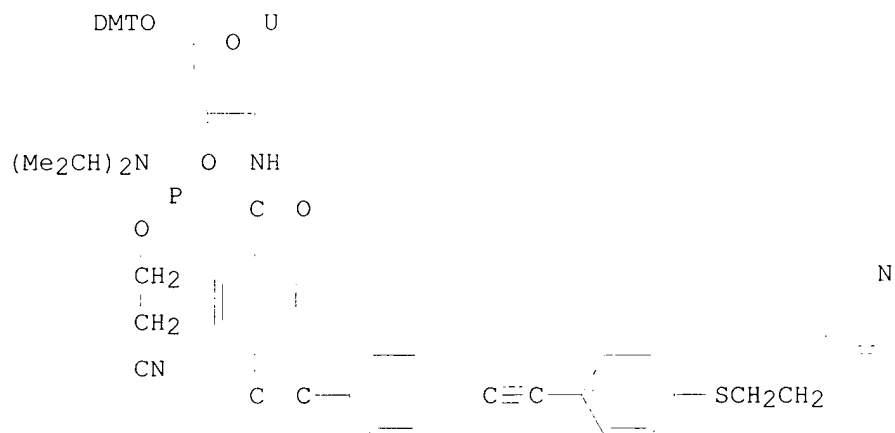
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L24 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:324918 HCAPLUS
DN 129:25365
TI Electrodes linked via conductive oligomers to nucleic acids for detection
of nucleic acids
IN Kayyem, Jon F.; O'Connor, Stephen D.; Gozin, Michael; Yu, Changjun
PA Clinical Micro Sensors, USA; Kayyem, Jon F.; O'Connor, Stephen D.; Gozin,
Michael; Yu, Changjun
SO PCT Int. Appl., 141 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-68
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3, 25, 29, 34

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | WO 9820162 | A2 | 19980514 | WO 97-US20014 | 19971105 |
| | WO 9820162 | A3 | 19981112 | | |
| | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| | AU 9851967 | A1 | 19980529 | AU 98-51967 | 19971105 |
| PRAI | US 96-743798 | | 19961105 | | |
| | US 97-40155 | | 19970307 | | |
| | US 97-873597 | | 19970612 | | |
| | US 97-873978 | | 19970612 | | |
| | US 97-899510 | | 19970724 | | |
| | US 97-911085 | | 19970814 | | |
| | US 97-911589 | | 19970814 | | |
| | WO 97-US20014 | | 19971105 | | |

GI



I

- AB Nucleic acids are covalently coupled to electrodes via conductive oligomers. Site-selective modification of nucleic acids with electron transfer moieties and electrodes gives a new class of biomaterials which can be used as electrodes to detect a target sequence in a nucleic acid sample. Thus, a uridine-phenylacetylene conductive oligomer phosphoramidite I and 5'-O-DMT-5-ferrocenylacetylenyl-2'-deoxy uridine (UBF) phosphoramidite were synthesized and incorporated into a nucleic acid sequence: ACCATGGAC[UBF]CAGCU-conductive polymer (II). Mixed monolayers of II and insulator HS-(CH₂)₁₆OH were constructed on gold electrodes and analyzed using cyclic voltammetry and square wave voltammetry in the absence and presence of complementary target sequence.
- ST conductive oligomer nucleic acid linked electrode; hybridization assay
- IT Nucleic acids
 RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (analogs; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)
- IT Oligomers
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (conducting; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)
- IT Nucleic acids
 RL: ARG (Analytical reagent use); DEV (Device component use); IMF (Industrial manufacture); ANST (Analytical study); PREP (Preparation); USES (Uses)
 (conjugates, with conductive oligomer attached to electrode and with electron transfer moiety; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)
- IT Glass electrodes
 (controlled pore, uridine-modified oligophenylacetylenes loaded on; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)
- IT Electrodes
 Electron transfer
 Electron transfer catalysts
 Nucleic acid hybridization
 (manuf. of nucleic acids coupled to electrodes via conductive oligomers)

for detection of nucleic acids)

IT Nucleic acids
 RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study)
 (manuf. of nucleic acids coupled to electrodes via conductive oligomers
 for detection of nucleic acids)

IT Peptide nucleic acids
 RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (manuf. of nucleic acids coupled to electrodes via conductive oligomers
 for detection of nucleic acids)

IT Metallocenes
 RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (manuf. of nucleic acids coupled to electrodes via conductive oligomers
 for detection of nucleic acids)

IT Coatings
 (passivating; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)

IT Microscopes
 (slides; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)

IT 24250-85-9P, 4-Iodo-L-phenylalanine 52164-27-9P 158686-46-5P
 207724-44-5P 207724-46-7P 207724-47-8P 207724-48-9P 207724-49-0P
 207724-50-3P 207724-51-4P 207724-62-7P 207724-63-8P
207724-64-9P 207724-66-1P 207724-68-3P 207724-69-4P
 207724-70-7P 207724-72-9P 207724-77-4P 207724-78-5P 207724-84-3P
 207724-85-4P 207724-86-5P 207724-87-6P 207724-88-7P 207724-89-8P
 207724-90-1P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
 (conductive oligomer intermediate; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)

IT 63-91-2, L-Phenylalanine, reactions 100-43-6 108-30-5, reactions
 625-95-6, 3-Iodotoluene 1066-54-2, Trimethylsilylacetylene 20924-05-4
 35371-03-0, 4-Iodothioanisole 39959-59-6, 4-Iodobenzylamine
 81246-79-9
 113019-11-7 134856-58-9, 1-Trimethylsilyl-2-(4-iodophenyl)acetylene
 153315-14-1 207724-60-5 **207724-65-0**
 RL: RCT (Reactant)
 (conductive oligomer starting material; manuf. of nucleic acids coupled
 to electrodes via conductive oligomers for detection of nucleic acids)

IT 207724-52-5P
 RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
 (conductive oligomer, CPG-supported; manuf. of nucleic acids coupled
 to electrodes via conductive oligomers for detection of nucleic acids)

IT 207724-79-6P
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (conductive oligomer, gold electrode-supported; manuf. of nucleic acids coupled to electrodes via conductive oligomers for detection of nucleic acids)

IT 207724-57-0P 207724-67-2P 207724-71-8P
 RL: IMF (Industrial manufacture); PREP (Preparation)

(conductive oligomer; manuf. of nucleic acids coupled to electrodes
 via
 conductive oligomers for detection of nucleic acids)
 IT 207724-55-8P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
 (conductive oligomer; manuf. of nucleic acids coupled to electrodes
 via
 conductive oligomers for detection of nucleic acids)
 IT 2536-35-8P, 16-Bromohexadecanoic acid 59101-28-9P, 16-Bromohexadecan-1-
 ol
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (insulator intermediate; manuf. of nucleic acids coupled to electrodes
 via conductive oligomers for detection of nucleic acids)
 IT 506-13-8 507-09-5, Thioacetic acid, reactions
 RL: RCT (Reactant)
 (insulator starting material; manuf. of nucleic acids coupled to
 electrodes via conductive oligomers for detection of nucleic acids)
 IT 69839-68-5P, 16-Mercaptohexadecanoic acid
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (insulator, coating on electrode; manuf. of nucleic acids coupled to
 electrodes via conductive oligomers for detection of nucleic acids)
 IT 157145-25-0 158400-61-4
 RL: DEV (Device component use); USES (Uses)
 (insulator, coating on gold electrode; manuf. of nucleic acids coupled
 to electrodes via conductive oligomers for detection of nucleic acids)
 IT 114896-32-1P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (insulator; manuf. of nucleic acids coupled to electrodes via
 conductive oligomers for detection of nucleic acids)
 IT 207724-94-5P 207724-95-6P 207724-96-7P 207724-97-8P 207724-99-0P
 207725-01-7P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
 (intermediate for peptide nucleic acid with electron transfer moiety;
 manuf. of nucleic acids coupled to electrodes via conductive oligomers
 for detection of nucleic acids)
 IT 207807-11-2
 RL: ARG (Analytical reagent use); BPR (Biological process); DEV (Device
 component use); PEP (Physical, engineering or chemical process); ANST
 (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
 (manuf. of nucleic acids coupled to electrodes via conductive
 oligomers
 for detection of nucleic acids)
 IT 207807-10-1P
 RL: ARG (Analytical reagent use); BPR (Biological process); DEV (Device
 component use); PEP (Physical, engineering or chemical process); SPN
 (Synthetic preparation); ANST (Analytical study); BIOL (Biological
 study);
 PREP (Preparation); PROC (Process); USES (Uses)
 (manuf. of nucleic acids coupled to electrodes via conductive
 oligomers
 for detection of nucleic acids)
 IT 13408-62-3, Ferricyanide
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)
 (manuf. of nucleic acids coupled to electrodes via conductive
 oligomers
 for detection of nucleic acids)
 IT 207724-83-2P
 RL: BYP (Byproduct); PREP (Preparation)
 (manuf. of nucleic acids coupled to electrodes via conductive
 oligomers

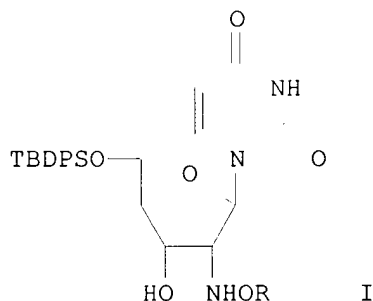
for detection of nucleic acids)
IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 207724-74-1P 207724-93-4P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 89992-70-1P 207724-73-0P 207724-76-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 54-42-2 1271-42-7, Ferrocene monocarboxylic acid 1694-92-4,
2-Nitrobenzenesulfonyl chloride 2712-78-9 7087-68-5,
Diisopropylethylamine 76101-30-9 207724-81-0 207724-91-2
RL: RCT (Reactant)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 207724-75-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 207724-82-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(manuf. of nucleic acids coupled to electrodes via conductive
oligomers
for detection of nucleic acids)
IT 207725-03-9P
RL: IMF (Industrial manufacture); PREP (Preparation)
(peptide nucleic acid with electron transfer moiety; manuf. of nucleic
acids coupled to electrodes via conductive oligomers for detection of
nucleic acids)
IT 105-67-9 696-07-1, 5-Iodo uracil 1271-47-2 5292-43-3, tert-Butyl
bromoacetate 172405-21-9
RL: RCT (Reactant)
(starting material for peptide nucleic acid with electron transfer
moiety; manuf. of nucleic acids coupled to electrodes via conductive
oligomers for detection of nucleic acids)
IT 1711-02-0, 4-Iodobenzoyl chloride 93183-36-9, Diisopropylammonium
tetrazolide 174221-86-4
RL: RCT (Reactant)
(starting material; manuf. of nucleic acids coupled to electrodes via
conductive oligomers for detection of nucleic acids)

L24 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:757852 HCAPLUS
DN 128:3847
TI Novel intramolecular introduction of nucleophiles to 2,2'-anhydrouridine
AU McGee, Danny P. C.; Vaughn-Settle, Alecia
CS ~~NeXstar Pharmaceuticals, Inc., Boulder, CO, 80301, USA~~
SO Nucleosides Nucleotides (1997), 16(7-9), 1095-1097
CODEN: NUNUD5; ISSN: 0732-8311
PB Marcel Dekker, Inc.
DT Journal
LA English

NA in STC

CC 33-9 (Carbohydrates)
 OS CASREACT 128:3847
 AB 2'-N-alkyluridine nucleosides are synthesized via intramol. reaction of alkyl isocyanates with 5'-O-protected-2,2'-anhydrouridine.
 ST alkyl isocyanate intramol cyclization anhydrouridine; alkyluridine nucleoside prepn intramol cyclization
 IT Cyclization
 (novel intramol. introduction of nucleophiles to anhydrouridine)
 IT Nucleosides, preparation
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (novel intramol. introduction of nucleophiles to anhydrouridine)
 IT 109-90-0, Ethyl isocyanate 3158-26-7, Octyl isocyanate **3736-77-4**, 2,2'-Anhydrouridine
 RL: RCT (Reactant)
 (novel intramol. introduction of nucleophiles to anhydrouridine)
 IT **173170-12-2P** 198965-11-6P 198965-12-7P 198965-13-8P 198965-14-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (novel intramol. introduction of nucleophiles to anhydrouridine)
 IT **198965-10-5P** 198965-15-0P 198965-16-1P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (novel intramol. introduction of nucleophiles to anhydrouridine)

L24 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:702453 HCAPLUS
 DN 126:75168
 TI 2'-Deoxy-2'-alkoxylaminouridines: novel 2'-substituted uridines prepared by intramolecular nucleophilic ring opening of 2,2'-O-anhydrouridines
 AU Sebesta, David P.; O'Rourke, Sarah S.; Martinez, Rogelio L.; Pieken, Wolfgang A.; McGee, Danny P.
 CS Nexstar Pharmaceuticals, Inc., Boulder, CO, 80301, USA
 SO Tetrahedron (1996), 52(46), 14385-14402
 CODEN: TETRAB; ISSN: 0040-4020
 PB Elsevier
 DT Journal
 LA English
 CC 33-9 (Carbohydrates)
 OS CASREACT 126:75168
 GI



AB Natural and unnatural modified nucleosides and nucleotides play important roles in biol., medicine, and as biomedical research tools. Reported herein is an application of synthetic methodol. developed for the stereo- and regiospecific introduction of structural modifications at the 2'-position of uridine nucleosides. A novel class of modified nucleosides, 2'-alkoxylamino-2'-deoxy uridines, e.g. I (R = Bn, Me, TBDMS)

are prep'd. by intramol. nucleophilic addn. of a 3'-tethered
alkoxycarbamate nucleophile to the 2'-position with concomitant opening
of a 2,2'-anhydrouridine.

ST alkoxycarbamate uridine intramol nucleophilic addn anhydrouridine;
anhydrouridine intramol nucleophilic ring opening;
deoxyalkoxylaminouridine prep'n; uridine nucleoside stereochem regiochem
prep'n

IT Nucleophilic addition reaction
(intramol.; prep'n. of 2'-substituted uridines via intramol.
nucleophilic ring opening of 2,2'-O-anhydrouridines)

IT Ring opening
(nucleophilic, intramol.; prep'n. of 2'-substituted uridines via
intramol. nucleophilic ring opening of 2,2'-O-anhydrouridines)

IT Regiochemistry
Stereochemistry
(prep'n. of 2'-substituted uridines via intramol. nucleophilic ring
opening of 2,2'-O-anhydrouridines)

IT Nucleosides, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prep'n. of 2'-substituted uridines via intramol. nucleophilic ring
opening of 2,2'-O-anhydrouridines)

IT 64-04-0, 2-Phenylethylamine 524-38-9, N-Hydroxyphthalimide 593-56-6,
Methoxyamine hydrochloride 622-33-3, Benzyloxyamine 957-75-5,
5-Bromouridine **3736-77-4**, 2,2'-Anhydrouridine 3958-60-9,
o-Nitrobenzyl bromide 32380-69-1 41879-39-4 118591-58-5
146815-26-1 173278-73-4
RL: RCT (Reactant)
(prep'n. of 2'-substituted uridines via intramol. nucleophilic ring
opening of 2,2'-O-anhydrouridines)

IT 30777-83-4P **35837-20-8P** 51572-92-0P **173170-12-2P**
175013-46-4P 175013-47-5P 175013-51-1P
175013-57-7P 175013-60-2P 175013-62-4P
185022-08-6P 185022-10-0P 185022-12-2P **185022-13-3P**
185022-14-4P 185022-16-6P 185022-17-7P
185022-22-4P 185022-23-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prep'n. of 2'-substituted uridines via intramol. nucleophilic ring
opening of 2,2'-O-anhydrouridines)

IT 175013-48-6P 175013-49-7P 175013-50-0P 175013-53-3P 175013-61-3P
175013-63-5P 176685-68-0P 176685-71-5P 185022-15-5P 185022-18-8P
185022-19-9P 185022-20-2P 185022-21-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prep'n. of 2'-substituted uridines via intramol. nucleophilic ring
opening of 2,2'-O-anhydrouridines)

L24 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:205035 HCAPLUS
DN 124:261622
TI Preparation of known and novel 2'-modified nucleosides by intramolecular
nucleophilic displacement of anhydronucleosides.
IN McGee, Danny P. C.; Pieken, Wolfgang A.; Sebesta, David P.; Zhai,
Yansheng
PA Nexstar Pharmaceuticals, Inc., USA
SO PCT Int. Appl., 73 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K031-00
ICS C07H001-00; C07H019-00; C07H021-00
CC 33-9 (Carbohydrates)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | WO 9535102 | A1 | 19951228 | WO 95-US6641 | 19950525 |
| | W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ | | | | |
| | RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| | CA 2192950 | AA | 19951228 | CA 95-2192950 | 19950525 |
| | AU 9526496 | A1 | 19960115 | AU 95-26496 | 19950525 |
| | EP 767657 | A1 | 19970416 | EP 95-921408 | 19950525 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| | JP 10501809 | T2 | 19980217 | JP 95-502200 | 19950525 |
| PRAI | US 94-264029 | | 19940622 | | |
| | WO 95-US6641 | | 19950525 | | |
| OS | MARPAT 124:261622 | | | | |
| GI | | | | | |

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB 2'-Modified nucleosides were prep'd. by (1) performing an intramol. nucleophilic reaction on an intermediate [I; B = nucleobase; W = O, S, C(R2)2, NR2, PR2, POR2; X = O, S, NH, NR4; Y = metal, C, Si, Se, S, B, Al, Sn, P; Z = imidazolyl, Cl, F, H, 2H, 3H, OH, NHOR1, NHOR5, NHNHR5, NHR5, :NH, CHCN, CHCl2, SH, SR5, CHF2, CF2H, OR4, etc.; R1 = H, protecting group; R2 = O, S, H, OH, CCl3, CF3, halo, (substituted) alkyl, alkenyl, aryl, acyl, PhCO, OR4, esters; R3 = O, S, OH, H, CCl3, halo, alkyl, alkenyl, aryl, PhCO, esters, OR4, null, cyclopentadienyl, cyclooctadienyl, CO, trialkylphosphine if Y = metal; R4 = (substituted) alkenyl, alkynyl, aryl, heterocyclyl, nucleoside, carbohydrate, fluorescent label, phosphate residue; R5 = R2, R4, CN, CONH2, CSNH2, SO2R4, amino acid, peptide residues and mixts. thereof], and (2) isolating the product. Thus, 5'-dimethoxytrityl-2,2'-anhydrouridine (II) was heated with Cl3CCN and NaH at 90.degree. for 16 h to give oxazoline deriv. (III), which was stirred with 80% aq. HOAc to give aminoalc. (IV).

ST nucleoside prepn; anhydronucleoside nucleophilic displacement reaction

IT Nucleosides, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of known and novel 2'-modified nucleosides by intramol. nucleophilic displacement)

IT Nucleosides, reactions
RL: RCT (Reactant)
(anhydro, prepn. of known and novel 2'-modified nucleosides by intramol. nucleophilic displacement)

IT Nucleotides, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(oligo-, prepn. of known and novel 2'-modified nucleosides by intramol. nucleophilic displacement)

IT 174221-82-0P **175013-47-5P** 175013-58-8P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic

preparation); PREP (Preparation)
 (prepn. of known and novel 2'-modified nucleosides by intramol.
 nucleophilic displacement)

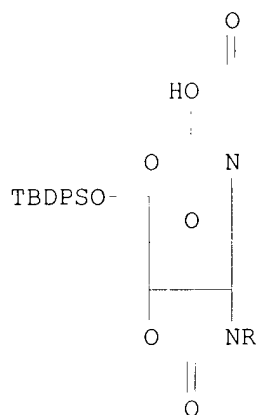
IT 23669-79-6P 26889-39-4P **35837-20-8P** 103285-22-9P
 143463-62-1P 160527-06-0P **174221-81-9P** 174221-86-4P
 175013-48-6P 175013-49-7P 175013-50-0P 175013-52-2P 175013-53-3P
 175013-61-3P 175013-63-5P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. of known and novel 2'-modified nucleosides by intramol.
 nucleophilic displacement)

IT 107-18-6, Allyl alcohol, reactions 109-88-6, Magnesium methoxide
3736-77-4 35754-82-6, Magnesium propoxide
 RL: RCT (Reactant)
 (prepn. of known and novel 2'-modified nucleosides by intramol.
 nucleophilic displacement)

IT 957-75-5P 7789-78-8P, Calcium hydride **173170-12-2P**
175013-46-4P 175013-51-1P 175013-54-4P
175013-57-7P 175013-60-2P 175013-62-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of known and novel 2'-modified nucleosides by intramol.
 nucleophilic displacement)

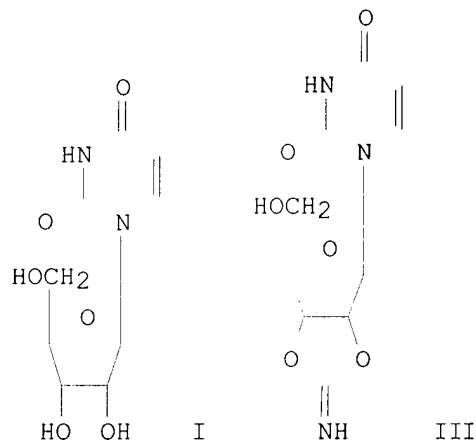
IT **175013-55-5P 175013-56-6P** 175013-59-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of known and novel 2'-modified nucleosides by intramol.
 nucleophilic displacement)

L24 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:182527 HCAPLUS
 DN 125:87092
 TI Novel nucleosides via intramolecular functionalization of
 2,2'-anhydrouridine derivatives
 AU McGee, Danny P. C.; Sebesta, David P.; O'Rourke, Sarah S.; Martinez,
 Rogelio L.; Jung, Michael E.; Pieken, Wolfgang A.
 CS NeXstar Pharmaceuticals Inc., Boulder, CO, 80301, USA
 SO Tetrahedron Lett. (1996), 37(12), 1995-8
 CODEN: TELEAY; ISSN: 0040-4039
 DT Journal
 LA English
 CC 33-9 (Carbohydrates)
 OS CASREACT 125:87092
 GI



- AB The generation of novel ribonucleoside analogs, e.g. I (R = OMe, OBn, Bz),
 derived from 2,2'-anhydrouridines by a 3'-hydroxyl directed intramol. nucleophilic substitution of the 2'-position is described. The methodol. allows for the efficient, regio- and stereoselective elaboration of the 2'-position, often under exceptionally mild reaction conditions.
- ST regioselective stereoselective nucleophilic substitution anhydrouridine; intramol nucleophilic substitution nucleoside; nucleoside analog prepn
- IT Substitution reaction, nucleophilic
 (intramol., regio- and stereoselective; prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- IT Regiochemistry
 Stereochemistry
 (prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- IT Nucleosides, preparation
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- IT 67-62-9 622-33-3, Benzyloxyamine 957-75-5 4461-33-0, Benzoyl isocyanate 41879-39-4 **173170-12-2** **175013-46-4**
 RL: RCT (Reactant)
 (prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- IT 26889-39-4P **35837-20-8P** 174221-82-0P 174221-86-4P
175013-47-5P **175013-51-1P** 175013-53-3P
175013-57-7P **175013-60-2P** **175013-62-4P**
176685-69-1P 176685-71-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- IT 174221-85-3P 175013-48-6P 175013-58-8P 175013-61-3P 176685-68-0P
 176685-70-4P 176685-72-6P **176685-73-7P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of nucleoside analogs via intramol. nucleophilic substitution of anhydrouridines)
- L24 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1984:407584 HCAPLUS
 DN 101:7584
 TI Reaction of uridine and uridine 5'-phosphate with diiminosuccinonitrile and cyanogen bromide in aqueous solution. Direct synthesis of the

2,2'-anhydronucleoside linkage at 2.degree.C
 AU Ferris, J. P.; Yanagawa, H.
 CS Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, USA
 SO J. Org. Chem. (1984), 49(12), 2121-5
 CODEN: JOCEAH; ISSN: 0022-3263
 DT Journal
 LA English
 CC 33-9 (Carbohydrates)
 Section cross-reference(s): 6
 GI



AB Reaction of uridine (I) with diiminosuccinonitrile (II) at 2.degree. in aq. soln. yielded 2,2'-anhydrouridine 3'-carbamate (54%) along with 2,2'-anhydrouridine (10%), arabinofuranosyluracil (9%), uridine, 2',3'-carbonate (5%), uridine 2'-carbamate (3%), and uridine 3'-carbamate (9%). A similar distribution of reaction products was obtained when BrCN was used in place of II. The same reaction products were isolated from the reaction of II or BrCN with uridine 5'-phosphate after the phosphate grouping was cleaved from the initial reaction product mixt. with alk. phosphatase. A reaction pathway is proposed in which the imidocarbonate III is a common intermediate for product formation. The vicinal 2',3'-OH groups are essential for reaction as shown by the failure to form stable reaction products with thymidine. Adenosine, which has vicinal 2',3'-OH groups, was converted to a mixt. of the 2'- and 3'-carbamates via an imidocarbonate intermediate with II or BrCN. The relevance of these studies to chem. evolution is discussed.

ST uridine diiminosuccinonitrile; nucleotide uridine diiminosuccinonitrile; cyanogen bromide uridine; cyclization uridine; anhydronucleoside; nucleoside anhydro; chem evolution nucleotide

IT Ring closure and formation
 (of uridine by diiminosuccinonitrile or cyanogen bromide)

IT Nucleosides, reactions
 Nucleotides, reactions
 RL: RCT (Reactant)
 (reaction of, with diiminosuccinonitrile or cyanogen bromide, anhydro derivs. from)

IT Evolution
 (prebiotic, reaction of uridine and uridine phosphate with diaminosuccinonitrile in relation to)

IT 3083-77-0P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in reaction of uridine with diiminosuccinonitrile)
 IT 87186-13-8P 89998-90-3P 89998-91-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and hydrolysis of)
 IT 3736-77-4P 6195-72-8P 89998-92-5P 89998-93-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 IT 58-61-7, reactions 58-96-8 58-97-9, reactions
 RL: RCT (Reactant)
 (reaction of, with diiminosuccinonitrile or cyanogen bromide)
 IT 50-89-5, reactions
 RL: RCT (Reactant)
 (reaction of, with diiminosuccinonitrile, attempted)
 IT 506-68-3 28321-79-1
 RL: RCT (Reactant)
 (reaction of, with uridine, uridine phosphate, or adenosine)

L24 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 1999 ACS

AN 1983:535696 HCAPLUS

DN 99:135696

TI Prebiotic synthesis and reactions of nucleosides and nucleotides

AU Ferris, J. P.; Yanagawa, H.; Hagan, W. J., Jr.

CS Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, 12181, USA

SO ~~Adv. Space Res. (1983), 3(9), 61-8~~

CODEN: ASRSDW; ISSN: 0273-1177

DT Journal

LA English

CC 6-2 (General Biochemistry)

AB Diiminosuccinonitrile (DISN) has been investigated as a potential prebiotic phosphorylating agent. It is formed readily by the oxidn. of diaminomaleonitrile (DAMN), a tetramer of HCN. DISN effects the cyclization of 3'-AMP to 2',3'-cAMP in .ltoreq.40% yield. The DISN-mediated phosphorylation of uridine to UMP does not proceed efficiently in aq. soln. The reaction of DISN and CNBr with UMP and uridine results in the formation of 2',2'-anhydronucleotides and 2',2'-anhydronucleosides, resp., and other reaction products resulting from an initial reaction at the 2'- and 3'-OH groups. The clay mineral catalysis of the cyclization of 3'-AMP was investigated using homoionic montmorillonites.

ST prebiotic formation reaction nucleotide nucleoside; diiminosuccinonitrile nucleotide nucleoside reaction prebiotic; phosphorylation nucleotide diiminosuccinonitrile prebiotic

IT Evolution

(chem., nucleoside and nucleotide prepn. and reaction in relation to)

IT Ring closure catalysts

(montmorillonite, for AMP with diiminosuccinonitrile)

IT Phosphorylation, synthetic

(of nucleotides, by diiminosuccinonitrile, prebiotic phosphorylation

in

relation to)

IT Nucleosides, reactions

Nucleotides, reactions

RL: RCT (Reactant)

(prebiotic reactions of, diiminosuccinonitrile in relation to)

IT Nucleotides, preparation

RL: PREP (Preparation)

(cyclic, prebiotic formation of, diiminosuccinonitrile in relation to)

IT 1318-93-0D, zinc complex 7440-66-6D, montmorillonite complexes

RL: CAT (Catalyst use); USES (Uses)

(cyclization catalysts, for AMP with diiminosuccinonitrile)

IT 634-01-5P 3083-77-0P 3736-77-4P 6195-72-8P

87186-13-8P

RL: MFM (Metabolic formation); PREP (Preparation); BIOL (Biological study); FORM (Formation, nonpreparative)
(formation of, with diiminosuccinonitriles)

IT 84-21-9

RL: RCT (Reactant)
(phosphorylation and cyclization of, with diiminosuccinonitriles)

IT 58-96-8

RL: RCT (Reactant)
(reaction of, with diiminosuccinonitrile)

IT 58-97-9, reactions

RL: RCT (Reactant)
(reaction of, with diiminosuccinonitriles)

IT 506-68-3

RL: RCT (Reactant)
(reaction of, with nucleosides and nucleotides)

IT 28321-79-1P

RL: PREP (Preparation); RCT (Reactant)
(reaction of, with nucleosides and nucleotides, prebiotic syntheses

and

phosphorylation in relation to)



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